

## The First Central American Corduline.

By PHILIP P. CALVERT.

In 1897, Prof. G. H. Carpenter, in an article on the geographical distribution of the Odonata,\* pointed out the absence of the Cordulinae from Mexico and Central America. Not having succeeded in finding any specimens or records of this subfamily from these countries (except a single mention of *Macronia* larvæ from Northern Mexico), when preparing the account of the Odonata for the *Biologia Centrali Americana*,† I have emphasized in a recent paper‡ the absence of the Cordulinae as one of the characteristics of these areas. As an undoubted member of the group has now been discovered in Costa Rica, I wish to correct the erroneous idea for which I have stood sponsor.

In June, 1909, while enjoying the hospitality of the United Fruit Company, at the house of Superintendent E. W. F. Reed, at Guapiles, Costa Rica, it was my good fortune to find there Messrs. William Schaus and John Barnes, whose labors on the Lepidopterous fauna of Costa Rica are the most extensive yet undertaken and to whose knowledge of the country I am greatly indebted. While at Guapiles we collected Lepidoptera and Odonata, sometimes together, sometimes separately. On one of the latter occasions, on June 4, 1909, Mr. Barnes took a single male of the species described below, in what is locally known as the Florida road, a trail passable for horse and pedestrian, running westward into the virgin forest from near San Jacinto, a hacienda a few miles west of Guapiles. The elevation of Guapiles accepted by Prof. Pittier is 300 metres, and that of the locality here in question can not be very different.

Of the Corduline nature of this male there can be no doubt as it possesses the following characters laid down for that sub-

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\*Scientific Proceedings, Royal Dublin Society (new series), Vol. VIII, p. 450.

†Cf. volume Neuroptera, pp. 197-198, 1905.

‡"The Composition and Ecological Relations of the Odonate Fauna of Mexico and Central America," Proceedings of the Academy of Natural Sciences of Philadelphia for 1908, p. 461.

family by de Selys: Eyes posteriorly with a graniform prolongation, a bundle of hairs at the external antero-distal extremity of the first femur, first tibia with an inferior distal lamella, auricles on the sides of the second abdominal segment, hind wing with the anal margin excavated and with an anal triangle.

The other members of the genus *Neocordulia*, to which this newly-found insect belongs, are Brazilian and none have yet been found in the territory between Brazil and Costa Rica.

***Neocordulia longipollex* n. sp.**

♂ Vertex and frons metallic purple, the former rounded and convex at tip, the latter with a deep median groove, both punctate and clothed with blackish hairs. Nasus and labrum black, rhinarium and labrum reddish brown, occiput and rear of the head black, hairs on the rear of the head yellowish or pale brown, on the other parts named darker.

Thorax brilliant metallic green with bluish reflections, most of the pectus reddish brown; clothed on all sides with hairs, mostly pale colored, except on the upper parts of the mesepisterna, where they are fuscous, longest on the lower parts of the sclerites named.

Abdomen enlarged at segments 2 and 7-10; black, ventral margins of the tergites of 2-8 narrowly cream colored or yellow. Segment 10 with a mid-dorsal carina continued into a mid-dorsal prolongation of the posterior margin of the segment.

Superior appendages as long as 9 and 10, in dorsal view straight, slightly enlarged at the apex which is somewhat rounded laterally and slightly truncated mesially; in profile view barely convex superiorly, slightly enlarged at the apex which is rounded; except for the slight apical enlargement the appendages are of subuniform thickness and possess no teeth or spines.

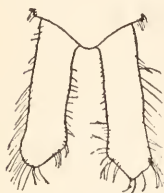


Fig. 1.—Superior abdominal appendages ♂, dorsal view.  $\times 10$ .

Inferior appendage longer than ( $1\frac{1}{4}$  times as long as) the superiors; in profile view a little concave superiorly with a slight superior convexity at one-third length; in ventral view its truncated apex is half as wide as its base, each of the two apical angles terminating in a small upturned tooth.

Genitalia of abdominal segment 2: anterior lamina concave, concealed in profile view by the sides of the segment; hamule two-branched, posterior branch the larger, depressed, its apex rounded horizontally, anterior branch more prominent, terminating in a slender hook directed caudad, mesad and finally dorsad; genital lobe subequally prominent with the posterior hamular branch, a little narrower at its

rounded apex than at its base, hairy. In the unique specimen the basal part of the penis projects beyond any of the genitalia above described and the vesicle of the penis is as prominent as the genital lobe.

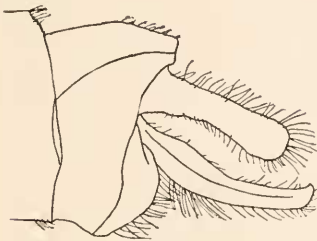


Fig. 2.—Apex of abdomen ♂, left side, profile view.  $\times 10$ .



Fig. 3.—Inferior appendage ♂, ventral view.  $\times 10$ .

Dimensions: Abdomen (incl. apps.) 39, superior appendages 2, hind wing 34, costal edge of stigma of front wing 2.5, maximum width



Fig. 4.—Genitalia of second abdominal segment ♂, inverted. Left side, profile view,  $\times 10$ .



Fig. 5.—Wings of left side ♂, from below. Slightly more than natural size.

Legs mostly black but the coxae, trochanters and proximal ends of the femora reddish-brown.

Wings uncolored, stigmata and venation dark brown or black, all the triangles and supratrangular areas free, two post-triangular rows from the discoidal triangle out to the level of the fourth postnodal (front wings) or of the nodus (hind wings), one row of cells between  $R_5$  (subnodal sector of de Selys) and the supplementary sector next below, arculus between the first and second antenodals, distinctly nearer to the latter, and proximal to the proximal side of the discoidal triangle.

Front wings with 13-14 antenodals, 11 postnodals, one cubito-anal (submedian, de Selys) cross-vein,  $M_4$  (short sector) and  $Cu$ , upper sector of the triangle) subparallel a little nearer together at the level of the second postnodal.

Hind wings with 8-7 antenodals, 14 postnodals, two cubito-anal cross-veins, the distal one coinciding with the arculus, membranule pale brown, anal triangle two-celled.

of hind wing (at level of separation of  $M_1 + 2$  and  $M_3$ ) 11.5 mm.

♀. Unknown.

*Hab.*—Costa Rica, forest west of Guapiles, as above described. Male type in collection of P. P. Calvert.

The specific name proposed alludes to the length of the inferior appendage of the male which acts as an opposable organ (hence *pollcx*) in grasping the female.

The figures illustrating the appendages of the abdomen and the genitalia have been drawn from under the compound microscope with the camera lucida. The wings were photographed to as large a scale as our camera permitted, a blue print made from the negative, the veins inked with waterproof black ink, the blue background washed to white with ammonia water and "copy" thus obtained for the engraver.

Having very little literature on the Odonata accessible to me at present, I have asked Mr. E. B. Williamson to look over the manuscript of this paper and correct it where necessary.

*Cartago, Costa Rica, October, 1909.*

Dr. Calvert's interesting new species seems to be most closely related to *Ncocordulia batesi* Selys, recorded by Martin, from Brazil and Ecuador. In *batesi* the superior appendages, as in *longipollcx*, are without any promiencences but are conspicuously dilated apically as opposed to the subuniform thickness of the appendages throughout in *longipollcx*; and the inferior appendage is shorter than the superiors, not greatly exceeding them as is the case in *longipollcx*. No changes have been made in Dr. Calvert's manuscript. E. B. W.

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## The Bees of Virginia—*Prosopis*, *Sphecodes*, *Osmia*.

By JOHN H. LOVELL, Waldoboro, Maine.

The bees of the southern states are so imperfectly known that collections from any part of this region possess more than usual interest. Some months ago I received from Dr. Nathan Banks for determination a collection of bees largely from Virginia belonging to the genera, *Osmia*, *Sphecodes* and *Prosopis*. Only a few species of *Osmia* and *Prosopis* have been recorded from this state, while the genus *Sphecodes* is wholly unknown from this area. A list of the species is as follows: